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Published in:
Acta Dermato-Venereologica

DOI:
[10.2340/00015555-3533](https://doi.org/10.2340/00015555-3533)

Publication date:
2020

Document version
Publisher's PDF, also known as Version of record

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Citation for published version (APA):
Fredman, G., Blomberg, M., & Lei, U. (2020). Occupational Skin Cancer in a Crematory Operator. *Acta Dermato-Venereologica*, 100(13), [adv00176]. <https://doi.org/10.2340/00015555-3533>

Occupational Skin Cancer in a Crematory Operator

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Accepted May 19, 2020; Epub ahead of print May 25, 2020

Ultraviolet radiation (UVR) is the most important risk factor for development of non-melanoma skin cancer (NMSC) (1, 2). Work-related sun exposure in outdoor workers may lead to the development of NMSC, and may therefore be acknowledged as an occupational disease, but due to under-reporting and lack of legal recognition, the number of recognized cases is relatively low (3). Other work-related exposures representing risk factors for NMSC are chemical carcinogens, such as arsenic, tar, and polycyclic hydrocarbons, UV irradiation from industrial burns and welding, and X-ray exposure (4, 5). The true magnitude of NMSC due to occupational exposure to carcinogens is not known (1).

CASE REPORT

A 71-year old male crematory operator presented to our clinic in 2017 with severe actinic damage on the right side of his face. He had a history of multiple basal and squamous cell carcinomas on the scalp and face (**Fig. 1**). Because of the unilateral actinic damage, and a history of very little sun exposure during leisure time, suspicion of occupational-related skin damage was raised. The patient's work as a crematory operator, involved placing coffins into a closed burn chamber with optimal temperature around 1,000°C using natural gas as fuel. In order to maintain optimal combustion and air supply throughout the cremation process, the patient frequently opened a hatch into the closed unit to be able to spread the embers and body parts. The right side of his face was always positioned towards the burn chamber, typically at a distance of about 20–25 cm. The work was performed indoors and with no protective equipment, apart from gloves. The patient had worked in this profession for 25 years, working 8 h daily 5–7 days a week, with a mean of 3 weeks of holiday per year. He lived in an apartment without a garden, and was rarely exposed to the sun. Due to his occupational history, NMSC was reported to the national Labour Market Insurance and was acknowledged as an occupational disease, leading to a compensation of 80,000 DKK/10,706 EUR.

DISCUSSION

For crematory workers there are no published cases of an association between occupation and NMSC. In a recently published case report, crematory equipment



Fig. 1. Severe actinic damage on the right side of the patient's face. Scarring after multiple treatments of basal and squamous cell carcinomas of the scalp and face. Written permission from the patient has been given to publish these photographs.

was contaminated with a radiopharmaceutical, lutetium Lu 177 and a radioactive isotope, technetium Tc 99m, was detected in the urine of a crematory operator after cremation of a patient with pancreatic cancer (6). Other case reports have described potential contamination of crematory workers with radiopharmaceuticals, but studies are needed to further address safety concerns associated with cremation, and to evaluate radioactivity in deceased patients (6–8).

For outdoor workers the cumulative occupational sun exposure must exceed the cumulative sun exposure during leisure time, in order to have NMSC recognized as an occupational disease (5). The current patient

was not exposed to sun through work or during leisure time, which illustrates the importance of recognizing other occupations with increased risk of developing skin cancer and precancerous lesions. Since the patient was positioned close to the crematory burns, he could have been exposed to additional risk factors for NMSC, such as polycyclic hydrocarbons and other possible combustion-generated contaminants. Dermal uptake of polycyclic hydrocarbons due to the close proximity of the face to the burns may explain the multiple NMSC on scalp and face (9).

The risk of cancer from exposure to polycyclic hydrocarbons has been studied in firefighters (9). A potential risk of cancer from exposure to polycyclic hydrocarbons, has been found, but there is a lack of data to show a causal relationship (9). Therefore, further research into the correlation between individual polycyclic hydrocarbons and the risk of cancer are needed. Since occupational cancers, in general, and specifically occupational NMSC are under-reported, this case highlights the importance of recognizing occupational skin cancer due to exposure to factors other than sun.

The authors have no conflicts of interest to declare.

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